

Lab services for aircraft interior components



Lab services



Contents	Page
Overview / key advantages	3
Vertical Bunsen burner test	4
Horizontal burner test	4
45-degree Bunsen burner test	4
Seat cushion test	5
Heat release test	6
Smoke and toxicity test	7
FAQ	8/9
EASA approval certificate POA	10
AS/EN 9100 certificate	11
Accreditation document fire test lab	12
About Lantal / contact	13

Key advantages

Lantal's laboratory services concept offers the following compelling advantages:

- **Single-source convenience – from fabrics and carpets to testing – you save time and money**
- **Lantal's labs are equipped to perform all relevant airworthiness tests for interior components – also for third parties**
- **Every product manufactured by Lantal is tested and delivered with a flammability test certificate**

Certification of laboratory services

In connection with the Production Organization Approval (POA), Lantal's lab in Langenthal was audited by the Swiss Federal Office of Civil Aviation (FOCA).

As an essential part of the production process, Lantal is able to provide customers with EASA-recognized test certificates.

Besides the flammability tests according to FAR / CS 25.853 for aircraft interior materials, we have the equipment for many other tests as well.

Our certification according to EASA 21 Subpart G and J enables Lantal to supply ready-made seat covers, headrest covers, curtains, cut carpets, and pneumatic components with the release certificate (EASA Form 1).

Lantal's laboratory in Langenthal is accredited as a center for fire tests pursuant to ISO/IEC 17025. This approval allows the lab to conduct fire tests listed in the scope of accreditation on materials and components used in aircraft interiors.

Lantal's independent laboratory in Abu Dhabi is in the process of accreditation. The accreditation will be completed by the end of 2018.

The test laboratories are also accessible to third parties.

Tests

- Flammability test vertical 12 or 60 sec. – as per specification FAR/CS 25.853, App. F, Part I, (a)(1)(i) and (ii) or Airbus AITM 2-0002A/B or BSS 7230
- Flammability test horizontal – as per specification FAR/CS 25.853, App. F, Part I (a)(1)(iv) and (v) or AITM 2-0003
- 45 degree Bunsen Burner test for cargo compartments – as per specification FAR/CS 25.853, App. F Part I (a)(2)(ii) and (iii) or Airbus AITM 2-0004
- Smoke test – as per specification FAR/CS 25.853, App. F Part V or Airbus AITM 2-0007/2-0008 or Boeing Specification Support (BSS 7238)
- Toxicity test – as per specification ABD 0031/ AITM 3-0005 or BSS 7239
- Oil Burner Tests for Seat Cushions – as per specification FAR/CS 25.853, App. F, Part II or AITM 2-0009
- Heat release rate (OSU test) – as per specification FAR/CS 25.853, App. F, Part IV or AITM 2-0006

In connection with the Design Organisation Approval our CVE Cabin Safety is able to witness your tests.



Flammability tests

Flammability test – as per specification FAR/CS 25.853, App. F, Part I, 12 or 60 sec. vertical, horizontal, 45° test for cargo compartments.

For each compartment occupied by the crew or passengers the following applies: Materials must meet the applicable test criteria in Part I of App. F regardless of the passenger capacity of the airplane:

Vertical Bunsen burner test

FAR / CS 25.853,
Appendix F Part I (a)(1)(i) (a)(1)(ii)
AITM 2-0002 A/B
Aircraft Materials Fire Test Handbook Chapter 1

Requirements

Ignition time	60 sec.	12 sec.
Average extinguishing time	max. 15 sec	max. 15 sec
Average burn length	max. 152 mm (6 in.)	max. 203 mm (8 in.)
Average drip extinguishing time	max 3 sec.	max. 5 sec

Size/number of test samples

Size	305 mm long x 75 mm wide
Textiles	3 each warp & fill direction
Leather	3 samples each

Panels, etc. 3 samples each if flammability characteristics are the same in different directions

Horizontal burner test

FAR / CS 25.853 Appendix F Part I
AITM 2-0003
Aircraft Materials Fire Test Handbook Chapter 3

Requirements

Appendix F Part I	(a)(1)(iv)	(a)(1)(v)
Average burn rate	64 mm/min 2.5 inches/min	102 mm/min 4.0 inches/min

Size/number of test samples

Size 305 mm long x 70 mm wide

Textiles	3 each warp direction 3 each fill direction
Leather	3 samples each
Panels, etc.	3 samples each if flammability characteristics are the same in different directions

45-degree Bunsen burner test

FAR / CS 25.853
AITM 2-0004
Aircraft Materials Fire Test Handbook Chapter 2

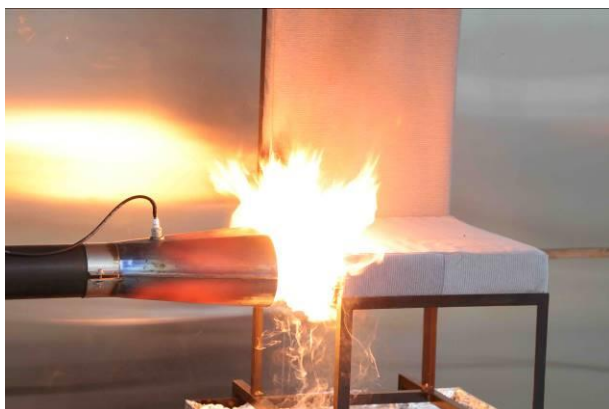
Requirements

Appendix F Part I (a)(2)(ii)(iii)

The flame may not penetrate (pass through) the material during application of the flame or subsequent to its removal. The average flame time after removal of the flame source may not exceed 15 seconds and the average glow time may not exceed 10 seconds.

Size/number of test samples

45° 3 samples each 240 x 240 mm



Seat cushion test (Oil burner test for seat cushions)

- As per specification FAR/CS 25.853, App. F, Part II
- AITM 2-0009
- Aircraft Materials Fire Test Handbook Chapter 7

In addition to meeting the requirements of subparagraph (a) of CS 25.853, App. F, Part II, seat cushions, except those on flight crew member seats, must meet the test requirements of part II of App. F

Requirements

FAR / CS 25.853, Appendix F Part II

Average weight loss	max. 10%
Burn length	For at least two-thirds of the total number of specimen sets tested, the burn length must not reach the side of the cushion opposite the burner. The burn length must not exceed 432 mm (17 in.)
Apply time	2 minutes
Flame temperature	Average. 982 °C
Flame length	Approx. 300 mm
Specimen	3 sets consisting of seat and back cushion

Size/number of test samples

Seat cushion

3 samples each 508 x 457 mm / 102 mm thick

Back

3 samples each 635 x 457 mm / 51 mm thick

Construction

Each specimen tested will be fabricated using the principal components (i.e. foam core, flotation material, fire-blocking material, if used, and dress covering) and assembly processes (representative seams and closures) intended for use in the production articles. If a different material combination is used for the production back cushion than for the production bottom cushion, both material combinations will be tested as complete specimen sets. Each set will consist of a back cushion specimen and a bottom cushion specimen.



Heat release test

Heat release rate (OSU test), as per specification
FAR/CS 25.853, App. F, Part IV
AIRM 2-0006
Aircraft Materials Fire Test Handbook Chapter 5

Requirements

Total heat release	max. 65 KW min/m ² at 2 min
Peak heat release	max. 65 KW/m ²
Apply time	5 minutes
Heating elements	3.5 W / cm ²
	1 lower pilot burner
	1 upper pilot burner
Air inlet	40 l / s

Size/number of test samples

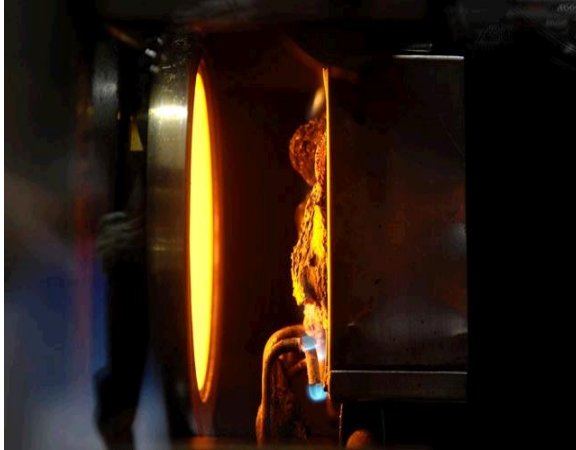
Part IV OSU

3 samples each 150 x 150 mm
Thickness up to 45 mm

The following interior compartments of airplanes with passenger capacities of 20 or more must also meet the requirements of part IV and V of App. F, in addition to part I: Interior ceiling and wall panels, other than lighting lenses and windows; partitions, other than transparent panels needed to enhance cabin safety.

Galley structure, including exposed surfaces of stowed carts and standard containers.

Large cabinets and cabin stowage compartments, other than underseat stowage compartments for stowing small items such as magazines and maps.



Smoke and toxicity test

Smoke test – as per specification
FAR/CS 25.853 App. F Part V in accordance with
Aircraft Materials Fire Test Handbook Chapter 6
AITM 2-0007
BSS 7238

Requirements

In accordance with regulation: max Ds 4 min = 200
According to ABD 0031 (NBS smoke chamber) and
BSS, depending on the test material.

Toxicity test – as per specification
AITM 3-0005
BSS 7239

Requirements

According to ABD 0031 (NBS smoke chamber) and
BSS, depending on the test material.

Number/size of test samples

According to ABD 0031 and BSS, depending on the
material.

3 or 6 samples 75 x 75 mm



FAQ

Seat cushion test (oil burner test for seat cushions) – What is a test by similarity?

A similarity test is a simplified test that applies to a new product under certain circumstances. For instance, a new generation of upholstery fabrics does not have to undergo extensive seat burn testing if no major changes in composition and weave are involved. In such a case, a simple Bunsen burner test of the new material is sufficient for recertification provided it is better than or equal to the old one in terms of burn length. This is what the FAA says:

Similar dress covering (from FAA Advisory Circular 25.853-1, "Flammability of Aircraft Seat Cushions," Sections 5d[1] and [2]) refers to dress covering materials having the same material composition, weave style, and weight. Material blends can be considered similar when the constituent materials fractions are the same, ± 6 percent, as the tested material. Examples of different weave styles include plain, jacquard, or velvet. With regard to weight, lighter fabrics are generally more critical than heavier fabrics. Due to the severe shrinking and unpredictable distortion

experienced by leather dress cover materials, similarity approvals for leather are not recommended.

Certification by similarity to previously tested dress covers should be limited to instances where the material composition is the same and the weight and weave type are essentially the same. In all cases, results of the Bunsen burner test per FAR 25.853(b) for the new material should be equal to or better with respect to burn length than the tested material. In addition, it may be useful to evaluate the weight loss and burn length results of the oil burner test to determine if the tested material is a good basis for similarity; that is, the closer weight loss and burn length with the oil burner are to the maximum allowed, the more alike the dress covering materials should be for similarity. In general, test data and resultant experience gained from conducting tests should also be a major source of information to determine if approval by similarity is acceptable.

Is there a seat burn test by similarity for leather?

Unlike the common seat burn test by similarity for upholstery, an analogous test for leather is not practicable. This is what the Federal Aviation Administration FAA says in its Advisory Circular 25.853-1, "Flammability Requirements for Seat Cushions," Section 5.d.1: (...) Due to the severe shrinking and unpredictable distortion experienced by leather dress cover materials, similarity approvals for leather are not recommended.

Another factor to be considered is the tanning and dyeing process. Even if the same grade of leather is used for the renewal of upholstery, our experience with seat manufacturers confirms that a new seat burn test is required if the customer chooses a different color.

Are Lantal fabrics permanently flame-retardant?

Yes. Lantal fabrics made of 100 % wool and wool blends are flame-retardant and remain so in the long term when dry-cleaned according to our recommendations. This has been confirmed by tests in which fabrics were cleaned more than 25 times.

Also, 100 % polyester TREVIRA CS fabrics are inherently flame-retardant. They too can be dry-cleaned or washed with appropriate processes.

- Gurit
- Rockwell Collins (B/E Aerospace Inc.)
- SR Technics
- Stelia Aerospace
- Trench
- Turkish Airlines Technics Inc.
- Etc.

Is Lantal authorized to perform tests pursuant to CS 25.853?

Yes, based on our production organization approval (POA) EASA Part 21 subpart G, we have full permission to certify our products in accordance with CS 25.853. Each production lot is tested for flammability and shipped with a test certificate. If requested, a certificate of conformity can be issued as well.

The certification specifications (CS) correspond to the Federal Aviation Regulations (FAR), as do their tests.

Which customers rely on Lantal lab services?

For example:

- ACM
- Air France
- Airbus
- Bucher Leichtbau
- Diehl Aircabin GmbH
- Diehl Comfort Modules GmbH
- Etihad Airways Engineering
- FACC
- Finnair

EASA certificate
Production Organisation Approval (POA)

<p>Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra Swiss Confederation Federal Office of Civil Aviation FOCA</p> <p>Production Organisation Approval Certificate</p> <p>Reference: CH.21G.0012</p> <p>Pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and to Commission Regulation (EC) No 748/2012 for the time being in force and subject to the condition specified below, FOCA hereby certifies:</p> <p>LANTAL TEXTILES AG</p> <p>Dorfgasse 5, CH-4900 Langenthal</p> <p>as a production organisation in compliance with the Annex (Part 21), Section A, Subpart G of Regulation (EC) No 748/2012, approved to produce products, parts and appliances listed in the attached approval schedule and issue related certificates using the above references.</p> <p>Conditions: 1. This approval is limited to that specified in the enclosed Terms of Approval, and 2. This approval requires compliance with the provisions specified in the approved production organisation exposition, and 3. This approval is valid whilst the approved production organisation remains in compliance with the Annex (Part 21) of Regulation (EC) No 748/2012. 4. Subject to compliance with the foregoing conditions, this approval shall remain valid for an unlimited duration unless the approval has previously been surrendered, superseded, suspended or revoked.</p> <p>Date of original issue: 01.12.2006 Date of this revision: 17.12.2015 Revision Nr.: 5</p> <p> Christian Hegner Vice Director Safety Division - Aircraft</p> <p> Gianmario Giacomelli Head of Section Design and Production</p> <p>EASA Form 55a Issue 2</p>	<p>Schweizerische Eidgenossenschaft Confédération suisse Confederazione Svizzera Confederaziun svizra Swiss Confederation Federal Office of Civil Aviation FOCA</p> <p>Terms of Approval TA: CH.21G.0012</p> <p>This document is part of Production Organisation Approval Number CH.21G.0012 Issued to: Lantal Textiles AG</p> <table border="1"> <tr> <td>Section 1</td> <td>Scope of Work Production of C2 Parts</td> <td>Products / Categories Parts for pneumatic comfort system Parts of textile material for aircraft interiors</td> </tr> </table> <p>For details and limitations refer to the Production Organisation Exposition, Section 2.4.4.2</p> <p>Section 2 Locations Dorfgasse 5, CH-4900 Langenthal Berghofstrasse 1, CH-4917 Melchnau</p> <p>Section 3 Privileges The production organisation is entitled to exercise, within its Terms of Approval and in accordance with the procedures of its Production Organisation Exposition, the privileges set forth in 21.A.163. Subject to the following: Prior to approval of the design of the product an EASA Form 1 may be issued only for conformity purposes.</p> <p>Date of original issue: 01.12.2006 Date of this revision: 17.12.2015 Revision Nr.: 5</p> <p> Gianmario Giacomelli Head of Section Design and Production</p> <p> Thomas Hauser Inspector Section Design and Production</p> <p>EASA Form 55b Issue 2</p>	Section 1	Scope of Work Production of C2 Parts	Products / Categories Parts for pneumatic comfort system Parts of textile material for aircraft interiors
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Normative base

AS9100:D
technically equivalent
to fprEN 9100:2016

**Quality Management System –
Requirements for Aviation,
Space and Defence Organisations**
Requirements based on ISO 9001:2015

On behalf of



Issue date 18.12.2016
Date of audit 05.11.2018 – 08.11.2018
Expiry date 17.12.2019
Re-issue date 10.01.2019

Reg. no. H40347

Scope(s) 4, 21

X. Edelmann, President SQS

F. Müller, CEO SQS



Swiss Association for Quality and
Management Systems SQS



Partner of



Certificate

SQS accredited under the Aerospace Registration Management Program herewith certifies that the company named below has been audited in accordance with the requirements of EN 9104-001:2013 and has a management system which meets the requirements of the standards specified below.

Lantal Textiles AG
Dorfgasse 5
4900 Langenthal
Switzerland

Certified site(s)

SEVERAL SITES
According to appendix

Field of Scope

**Design and production of textile solutions
for aircrafts, buses, railways executives and
pneumatic comfort systems for aircrafts**

Normative base

AS9100:D
technically equivalent
to fprEN 9100:2016

**Quality Management System –
Requirements for Aviation,
Space and Defence Organisations**
Requirements based on ISO 9001:2015

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Swiss Association for Quality and
Management Systems SQS
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Partner of

Accreditation document fire test lab



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO
Swiss Accreditation Service SAS

Swiss Confederation

Based on the Accreditation and Designation Ordinance dated 17 June 1996 and on the advice of the Federal Accreditation Commission, the Swiss Accreditation Service (SAS) grants to

Lantal Textiles AG
Fire Test Lab
Dorfasse 5
4900 Langenthal



Period of accreditation:
13.11.2017 until 12.11.2022
(1st accreditation: 13.11.2012)

the accreditation as

Testing laboratory for fire tests in the field of railway and aviation typical testing

International standard: ISO/IEC 17025:2005
Swiss standard: SN EN ISO/IEC 17025:2005

3003 Berne, 10.11.2017
Swiss Accreditation Service SAS



Head of SAS
Konrad Flück

SAS is a signatory of the multilateral agreements of the European co-operation for Accreditation (EA) for the fields of testing, calibration, inspection and certification of management systems, certification of personnel and certification of products, processes and services, of the International Accreditation Forum (IAF) for the fields of certification of management systems and certification of products, processes and services and of the International Laboratory Accreditation Cooperation (ILAC) for the fields of testing and calibration.

About Lantal

Founded 1886

Manufacturing facilities

Switzerland: Langenthal, Melchnau, Huttwil

USA: Rural Hall, NC

Czech Republic: Kraslice

A total of 115 looms are available for the production of fabrics and carpets.

Quality Management in Switzerland

ISO 9001

AS/EN 9100 since 2005

Quality Management in USA

ISO 9001

BSI since 1997

Lab services in Switzerland

The independent fire test lab is authorized to conduct the corresponding tests according to the regulations of the international airline authorities since 1978.

ISO 17025 accreditation since 2012

Lab services in UAE

The independent fire test lab is authorized to conduct tests in accordance with the Airworthiness Regulations FAR / CS 25.853.

ISO 17025 accreditation until the end of 2018

A broad customer base counts on Lantal

Lantal's fire test labs are relied on and trusted by numerous valued customers. Many OEMs and suppliers rely on Lantal's professional lab services, which are carried out by experienced technicians.

Contact

Contact Lantal and discuss your needs with us. Rest assured that we can address your requirements.

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